

INTERNATIONAL EDUCATION

Educational challenges in vascular surgery: An Australasian response

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In Australia and New Zealand, training requirements in vascular surgery have substantially changed since 2002. Training in general surgery is no longer required. Trainees in vascular surgery need to be competent in open vascular surgery and in performing and interpreting vascular ultrasound imaging. They must also master a full range of endovascular procedures, including cannulation of arteries, and angioplasty and stenting procedures, and endoluminal repair of aneurysms with stent grafting. Applicants complete a rigorous selection process and are ranked nationally. Training is started in postgraduate year 3 or at any time beyond that. The 5-year program is the competency-based surgical education training (SET) program. The trainees sit an examination at the end of the SET 1 and also an exit examination in SET 5. Before the final examination, the trainees must have performed 400 major cases as primary operators and 150 peripheral percutaneous interventions. In addition they must satisfy the requirements of the on-line in-service examinations and show adequate ultrasound case volumes and completion of research projects. (J Vasc Surg 2008;48:66S-68S.)

TRAINING REQUIREMENTS IN VASCULAR SURGERY

Training requirements in vascular surgery in Australia and New Zealand have substantially changed since 2002. We have removed general surgery as a requirement for vascular surgery, because in our view, vascular surgeons are required to have a holistic approach to vascular disease. They should be competent in open surgery. They should be competent both in performing and interpreting vascular ultrasound studies. They are required to be competent in a full range of endovascular procedures and able to cannulate arteries, perform angioplasty and stenting, and they most certainly are required to be competent in the growing field of endoluminal stent grafting. We have tried to implement a training scheme that provides training in all of these facets of vascular disease.

SELECTION PROCESS

A young man or woman in Australia who wants to do vascular surgery has to complete a rigorous selection process whereby the applicants are ranked nationally. Applicants can apply in their second postgraduate year, commencing training in postgraduate year 3 or at any time beyond that. Applicants must complete a structured on-line curriculum vitae, a structured referee's report, and a semi-structured interview (Table I).

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Table I. Steps for selection of candidates in vascular surgery

<i>Australasian vascular surgery selection process</i>
<ul style="list-style-type: none"> • National selection • Application from postgraduate year 2 onwards • Structured on-line curriculum vitae • Structured referee reports • Semi-structured interview

Table II. Components of the surgical education training program for vascular surgery training

<i>Current training of a vascular surgeon in Australia and New Zealand in the 2007 SET program</i>
<ul style="list-style-type: none"> • SET 1-SET 5 • Competency based • Examinations at the end of SET 1 and SET 5 • Logbook requirements for open surgery and ultrasound • Satisfactory completion of on-line curriculum modules • All trainees attend annual skills course in the skills laboratory

SET, Surgical education training.

Table III. Requirements by the end of the second year of training in vascular surgery

<i>Vascular surgical requirement at completion of SET 2</i>
<ul style="list-style-type: none"> • Minimum 6 months of vascular surgery • Minimum 6 months of general surgery • 6 months of additional surgical terms • Minimum 8 weeks of intensive care unit • Minimum 8 weeks of ED, can be completed in postgraduate year 1 • Total duration of training, 5 years; will depend on competency

ED, Emergency department; SET, surgical education training.

PROGRAM COMPONENTS

This 5-year competency-based program is called the surgical education and training (SET) program (Table II). The trainees sit an examination at the end of the SET 1 and



Fig 1. The level 1 vascular curriculum map. *CT*, Computed tomography; *DVT*, deep venous thrombosis; *MRA*, magnetic resonance angiography; *SIRS*, systemic inflammatory response syndrome.

Table IV. Requirements by the end of the second year of training in vascular surgery

- Vascular surgery at the completion of SET 2*
- Pass generic surgical science examination and clinical examination (OSCE) by the end of SET 1
 - Pass a specialty-specific MCQ test in vascular surgery by June 30 of SET 2
 - Satisfactorily complete the following courses:
 - Australian and New Zealand Surgical Skills Education and Training (ASSET)
 - Care and Critically Ill Surgical Patient Course (CCrISP)
 - Early Management of Severe Trauma (EMST)

MCQ, Multiple-choice question; *OSCE*, objective structured clinical examination; *SET*, surgical education training.

an exit examination in SET 5. Open surgery, endovascular surgery, and ultrasound have a logbook requirement. In addition, an annual skills course takes place in the skills laboratory that includes some simulation training for endovascular procedures. During their training, the trainees are assessed every 3 months using a mixture of direct observation and procedural skills (DOPS) and a Mini Clinical Evaluation Exercise (MiniCEX). The requirements to be completed by the end of the second year of training are summarized in Table III.

During the first year of the program, the trainees are expected to work on a system of on-line curriculum modules that are illustrated by the vascular curriculum map level 1 (Fig 1). These level 1 modules lead to the basic sciences examinations, which the trainees are expected to successfully complete by the end of the second year. At the end of

Table V. Required operative experience before the final examination

- SET vascular operative experience*
- 600 major open surgical cases
 - 400 major surgical cases as primary operator:
 - 25 carotid endarterectomies
 - 40 open aortic aneurysms
 - 40 endovascular aneurysm repairs
 - 100 femoral artery dissections and anastomoses
 - 50 popliteal artery dissections and anastomoses
 - 25 distal (tibial/pedal) artery dissections and anastomoses
 - 50 renal access procedures
 - Endovascular
 - 150 percutaneous arterial cases
 - 100 peripheral interventions

SET, surgical education training.

each module, the trainees complete a self-assessment section, which they e-mail to the college to ensure that they have studied the modules. The requirements to successfully complete the first 2 years of the course are compiled in Table IV.

Operative and endovascular experience. During the final 3 years of the training, the trainees concentrate on acquiring operative skills, endovascular skills, and also increasing their theoretic knowledge. The total operative experience required before they take the final exit examination is summarized in Table V.

Didactic requirements. As can be seen from Fig 2, theoretic knowledge is not neglected during the final 3 years of the course. On-line modules are available on an

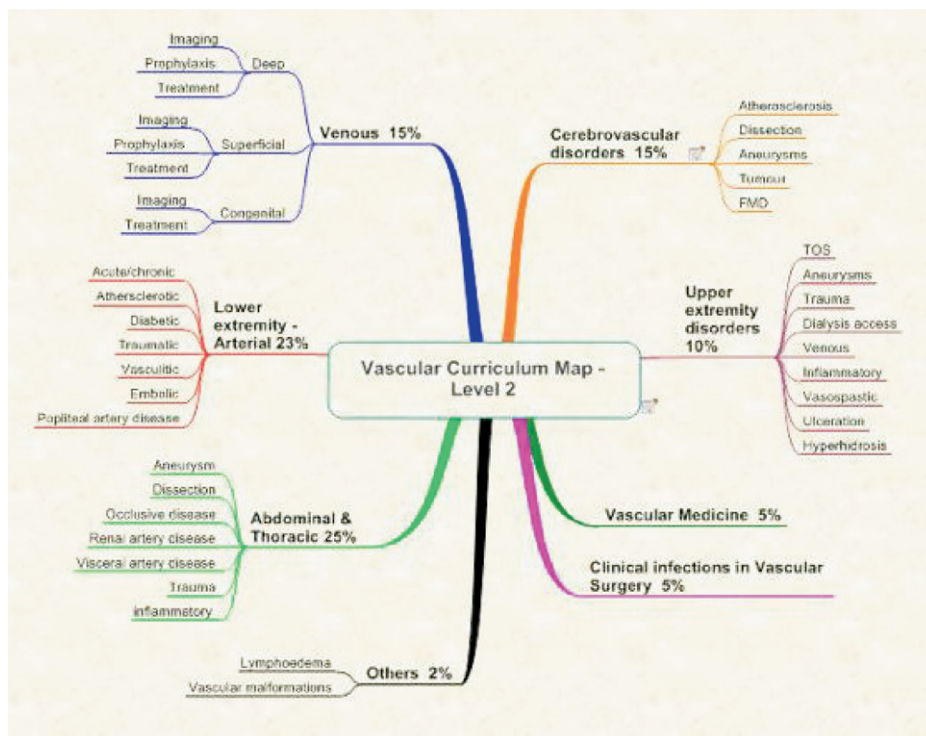


Fig 2. The level 2 vascular curriculum map. PVD, Peripheral vascular disease; TOS, thoracic outlet syndrome.

Table VI. Final requirements for Fellowship Exit Examination in vascular surgery

Australasian Vascular Surgical Education and Training Program SET 5 Year

Before sitting the Fellowship Exit Examination all trainees must have:

- Satisfactory assessments
- Satisfactory logbook of completed open surgical and endovascular cases
- Satisfactory logbook of completed ultrasound cases
- Completed on-line module
- Completed research requirements

SET, Surgical education training.

extensive range of topics; each module concludes with a self-assessment. The trainees are expected to complete each of the self-assessment sections and e-mail them to the college so that they can be checked. This method enables us to ascertain that the trainees have accessed the available

material and attempted the multiple-choice questions for each segment.

Final Fellowship Exit Examination. The requirements before sitting the final Fellowship Exit Examination are presented in Table VI.

SUMMARY

The past 15 years has seen significant changes in the Australasian Vascular Surgical Training Program. The general surgical component of the training has been progressively reduced until it is now a very small component. We have placed increasing emphasis on endovascular and ultrasound skills. The program has been shortened to 5 years, and the trainees can commence their training in postgraduate year 3. We have structured our program so that it is essentially competence-based rather than time-based.

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DISCUSSION

Dr Martin Veller (Johannesburg, South Africa). Such innovations that you have introduced in your training program are expensive. How are they being paid for?

Dr Alan Scott. It is resourced through the College of Surgeons, basically, which comes from the member subscriptions. So it is not government funded, no. And as far as the manpower is concerned, that is all given pro bono. Now, whether that will be

able to continue indefinitely, I don't know. There are a lot of discussions about whether we can expect our supervisors to spend this amount of time and effort, when these people are basically all in private practice, mentoring our trainees. So there is a potential problem. There is a lot of discussion on this. We may end up having some form of payment for our supervisors. But that will have to come from the government or from the hospitals.